

Policies to be Reviewed

- ▶ Incentives
 - » Green Investment Fund
 - » Green Building Feebate
 - » Density Bonus
 - » Priority Green Permitting
- ▶ Mandates
 - » Green Building Performance Standards
 - » Building Code Update
 - » Energy Code Update
- ▶ Option to select additional policy to analyze

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Policy Assessment Criteria

- ▶ Energy Efficiency Potential
- ▶ Economic Impacts
- ▶ Cost of Policy Implementation
- ▶ Cost Effectiveness
- ▶ Administrative Feasibility
- ▶ Stakeholder Impacts

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Energy Efficiency Potential – Rating System

- ▶ **Policy Uptake** (only for incentive policies)
 - » % of new development which elects to use the incentive programs
- ▶ **Energy Saving Potential**
 - » Potential to achieve energy savings for project future development
 - » Development projections were calculated using projections of future employment growth and average employment density per sector
- ▶ **Compatibility with Route Map of Energy Performance Improvements**
 - » Can be tied to a route map of incremental improvements to achieve zero carbon emissions for new construction by 2030

Averaged scores to get composite Energy Efficiency Potential Rating

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Energy Efficiency Potential - Methodology

Sustainable Systems Integrated Model (SSIM)

- Masterplanning and building level energy analysis tool developed by EDAW and DMJM H&N
- Used to analyze energy reduction potential of different policy options



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Energy Efficiency Potential - Methodology

Sustainable Systems Integrated Model (SSIM)

- Model Outputs
 - » Baseline energy consumption of typical building type
 - » Energy consumption of different energy system configurations – “game” different % energy reductions
 - » Anticipated annual Energy Savings (kWhr/yr/sqft)
 - » Payback Period (yrs)
 - » Estimated “Green Premium” to achieve Savings (\$/sqft)

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Energy Efficiency Potential - Methodology

Energy Modeling Option Summary					Commercial				
Variable	Executive	Typical	Good	Best	Executive	Typical	Good	Best	Best
Envelope	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
HVAC	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Lighting	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Controls	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Renewable	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Water	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Energy Reduction (kWh/yr/sqft)	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Payback Period (yrs)	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Green Premium (\$/sqft)	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline

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Energy Efficiency Potential – Ratings Scale

Rating	Description
★★★★★	Excellent: Policy uptake or program reach (>80% projects per year), efficiency potential savings (>1,000,000 MWh/yr)
★★★★	High: Policy uptake or program reach (50-80% projects per year), efficiency potential savings (500,000-1,000,000 MWh/yr)
★★★	Medium: Policy uptake or program reach (30-50% projects per year), efficiency potential savings (100,000-500,000 MWh/yr)
★★	Low: Policy uptake or program reach (10-30% projects per year), efficiency potential savings (10,000 - 100,000 MWh/yr)
★	Very Low: Low policy uptake or program reach (<10 projects per year), efficiency potential savings (<10,000 MWh/yr)

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Economic Impacts – Rating Criteria

► New Job Creation Potential

- » Potential of the policy to aid in job growth, especially in “green collar” job sectors

► Regional Economic Development Potential

- » Potential for the policy to aid in the economic development of the Seattle metropolitan region
 - » Energy savings to residents and businesses
 - » New industry growth
 - » Real estate value appreciation

Averaged scores to get composite Economic Impacts Rating

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Economic Impacts – Ratings Scale

Rating	Description
★★★★★	Excellent: New jobs in development, design, construction, and consulting industry are generated. A variety of positive economic impacts due to the policy - new industry growth, real estate appreciation, etc.
★★★★	High
★★★	Medium: Some new jobs in development, design, construction, and consulting industry generated. Some economic development generated from the policy - some value transferred to homeowner/building lease.
★★	Low
★	Very Low: No new jobs created, negligible potential for impact on regional economic development

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Cost of Policy Implementation – Rating Criteria

► Cost to City

- » Resources for development, implementation, and long-term administration/enforcement of policy/program.

► Cost to Developer

- » Costs born by developer in order to utilize incentive program or comply with mandate program (% project cost)

Averaged scores to get composite Cost of Policy Implementation Rating

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Cost of Policy Implementation – Methodology

► Cost to City = Program Cost (Annual \$)

- » Full-time equivalent employee cost to city
- » Expected number of employees
- » Any additional administrative or marketing costs
- » Estimated funding requirements (grant, loan, etc.)
- » Corroborated with evidence from interviews with cities

► Cost to Developer = % Project Cost

- » SSIM model = cost to developers of achieving specific energy savings
- » Corroborated with evidence from interviews with developers and cities

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Cost of Policy Implementation – Ratings Scale

Rating	Description
★★★★★	Very Low: Cost to City (~\$0/yr); Cost to developer (~0% project cost)
★★★★	Low: Cost to City (<\$100k/yr); Cost to developer (>2-3% project cost)
★★★	Medium: Cost to City (\$100-\$500k/yr); Cost to developer (3-5% project cost)
★★	High: Cost to City (\$500k-\$1MM/yr); Cost to developer (5-10% project cost)
★	Extremely High: Cost to City (\$1MM/yr); Cost to developer (>10% project cost)

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Cost Effectiveness – Methodology

$$\text{Cost Effectiveness} = \frac{\text{Program Cost (\$)}}{\text{Energy Savings (MWhr)}}$$

- ▶ **Program Cost = Annual (\$)**
 - » Cost to City and Cost to Developer
- ▶ **Energy Savings = Baseline Energy (MWhr/yr) x Savings (%)**
 - » Baseline Energy Consumption per Building Type = SSIM Model (kWhr/yr)
 - » Energy Savings = Minimum threshold energy performance (%) reduction)

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Cost Effectiveness – Ratings Scale

Rating	Description
★★★★★	Excellent: ~\$0-\$10/MWhr or revenue generating policy
★★★★	High: ~\$10-\$50/MWhr
★★★	Medium: ~\$50-\$100/MWhr
★★	Low: ~\$100-\$500/MWhr
★	Very Low: <\$500/MWhr

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Administrative Feasibility – Rating Criteria

- ▶ **Ease of Initiation**
 - » Resource needs to develop and finalize the policy.
- ▶ **Program Flexibility**
 - » Ability of the policy to adapt to changing conditions following its implementation
- ▶ **Administration Associated with Financing Policy**
- ▶ **Educational and Outreach Requirements**
 - » Resource requirements (monetary and staff needs) necessary for educational programs, trainings, and materials to administer the policy
- ▶ **Legal Challenges**
 - » Legal or regulatory challenges that could be anticipated in developing and/or implementing the policy

Averaged scores to get composite Administrative Feasibility Rating

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Administrative Feasibility – Methodology

► Interviews

- » Cities
- » Developers
- » City of Seattle staff
- » Seattle City Light
- » Puget Sound Energy

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Administrative Feasibility – Ratings Scale

Rating	Description
★★★★★	No significant administrative barriers, relatively easy to establish
★★★★	No insurmountable challenges; could require significant new system or procedure
★★★	One or more potential challenges that appear surmountable with moderate effort
★★	At least one difficult administrative barrier
★	Capacity to implement policy is lacking

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Stakeholder Impacts - Criteria

► Acceptability to Developer

- » Potential positive or adverse effects on the developer community
- » *Through interviews with developers in other jurisdictions*

► Acceptability to Stakeholders in Real Estate Community

- » Potential positive or adverse effects on the real estate community (contractors, realtors, trade groups, etc.)
- » *Through interviews with stakeholders in other jurisdictions*

► Impact on Susceptible Populations

- » Potential positive or adverse impacts on susceptible populations (i.e. low-income homeowners, affordable housing, etc.)

► Synergy with Current Policies – SCL & PSE

- » Extent to which policy would complement the current policy regime administered by SCL and PSE

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Stakeholder Impacts - Methodology

► Interviews

- » Cities
- » Developers
- » City of Seattle staff
- » Seattle City Light
- » Puget Sound Energy

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Green Investment Fund

- Green Investment Fund, Portland, OR
- Sustainable Energy Fund, Pennsylvania



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Green Investment Fund

Policy

- **Objective:** support early building and site-related project activities that examine the potential and identify the means to realize an exemplary, comprehensive green building project
- **Grant model:** competitive grant ~ 50k-100k per grant for innovative green building developments
- **Loan model:** commercial revolving loan fund ~ \$500k-\$1.5MM low-interest gap financing for energy efficiency components

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Green Investment Fund

Energy Efficiency Potential

★

- **Policy Uptake:** limited by size of fund
 - » **Grant:** ~\$1.5MM fund, 10-20 grantees per year
 - » **Loan:** ~\$15MM fund, ~22 total loans through 2030
- **Energy Savings:** high potential for energy savings at the project level, but low impact cumulatively
 - » **Grant** ~ 1,500-2,000 MWhr/yr
 - » **Loan** ~ 450-650 MWhr/yr
- **2030 Targets:** consistent with route map of energy performance targets in 2030 Challenge

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Green Investment Fund

Economic Impacts

★

- **Little impact on job market**
 - » Limited number of supported projects
 - » Negligible impact on job creation
- **Lower-income areas could benefit from funded projects**
 - » Strategic funding projects located in lower-income neighborhoods or business districts
 - » Potential to boost real estate prices and generate demand for supporting retail or commercial businesses.

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Green Investment Fund

Cost of Policy Implementation

★★★

- **Cost to City:** Significant cost to the city
 - » Grant: \$500k – \$2.5MM
 - » Loan: \$15-\$20MM in start up costs administration and employee costs are covered by interest payments after 5 years
- **Cost to Developer:** Potentially no additional cost to developer
 - » Approximately 2-3% of project cost to meet threshold building performance standards
 - » May reduce cost of capital for project

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Green Investment Fund

Cost Effectiveness

★

- ▶ **High program costs per MWhr of energy reductions**
- ▶ **Other potential benefits include strengthening business case for green building**

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Green Investment Fund

Administrative Feasibility

★★★

- ▶ **Ease of Initiation:** Raising fund could prove difficult
 - » Could require collaboration and/or financial backing from NGOs or private financiers
- ▶ **Sufficient administrative capacity** to administer either fund model within Seattle Department of Planning
 - » Loan fund could require additional staff for loan underwriting and due diligence (note: SEF employs seven fulltime staff)

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Green Investment Fund

Stakeholder Impacts

- ▶ Additional financing offsets the expected project cost increases
- ▶ Positive publicity for the awarded applicants could result in increased interest from financiers and tenants
- ▶ Potential benefit to susceptible communities if project funding strategically targets low-income neighborhoods and business districts
- ▶ Good synergy with existing SCL/PSE policies, though some potential for redundancy

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Green Investment Fund

Policy Scorecard

SUMMARY RATINGS (★★★★★ = best/most feasible)

ENERGY EFFICIENCY POTENTIAL	★	COST EFFECTIVENESS	★
ECONOMIC BENEFIT	★	ADMINISTRATIVE FEASIBILITY	★★★
COST OF POLICY IMPLEMENTATION	★★★		

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Green Investment Fund

Lessons Learned

- ▶ Grant model works best with mid to small size projects (1,500-25,000 sf)
 - » Modest grant of \$50k-\$100k can create opportunities for green building practices
- ▶ Loan model works best for mid to large projects (25,000-100,000 sf)
 - » Gap financing of approximately \$500k-\$2MM
- ▶ High building performance thresholds
 - » Limits the potential applicant pool for the policy
 - » Selects against smaller developers.
- ▶ The loan program must have a targeted market niche
- ▶ Difficult to promote debt financing products
 - » Low interest rates (prime or lower)
 - » Loan Payments < Energy Savings

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Discussion

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Green Building Feebate

- Green Building Feebate, Portland, OR



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Green Building Feebate

Policy

Objective: create a financial incentive/penalty system to shift the market to green building practices. Policy has potential to be self-financing, if properly designed.

- **Fee** would be charged for all new construction based on the square footage and energy intensity of the building
- **Waiver** would be obtained if the building meets certain green building standards
- **Reward** would be granted for high performance buildings, increasing according to the level of certifiable building performance

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Green Building Feebate

Policy Uptake Scenarios (Portland Example)

	Fee	Waiver	Reward
Baseline	75%	20%	5%
Scenario 1 - Low Adoption	60%	30%	10%
Scenario 2 - Medium Adoption	45%	40%	15%
Scenario 3 - High Adoption	30%	50%	20%

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Green Building Feebate

Energy Efficiency Potential

★★★

- **Policy uptake is dependent on fee price point and market conditions**
- **Average Energy Savings – 300,000- 900,000 MWhr/yr:**
 - » Dependent on policy uptake and energy performance threshold standard
- **Consistent with targets outlined in 2030 Challenge targets**

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Green Building Feebate

Economic Impacts

★★★

- **Job creation potential dependent on policy uptake**
 - » Opportunities for job growth for accredited professionals in 3rd party rating systems – LEED® and Earth Advantage
 - » Impact on development/construction dependent on market conditions
- **Regional Economic Development**
 - » Short term - Potential for project cost increases is high, which could affect real estate development market
 - » Long-term - High potential for policy to aid in regional economic development

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Green Building Feebate

Cost of Policy Implementation

★★★

- **Cost to City**
 - » Policy will require start-up costs, but will generate revenue for the City under most adoption scenarios
 - » Program can be revenue neutral if designed appropriately
- **Cost to Developer**
 - » Fee will result in project cost increases for developer (1-2%), though waiver and reward will offset incremental costs of development

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Green Building Feebate

Cost Effectiveness

★★★

- ▶ **Program cost per energy savings ~ \$60-\$110/MWhr**
 - » Figure uses *only* annual administrative costs and energy savings
 - » Likely to generate a positive cash flow for city, particularly in initial years

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Green Building Feebate

Administrative Feasibility

★★★

- ▶ **Good program flexibility if tied to 3rd party certification**
- ▶ **Significant educational outreach requirements**
- ▶ **Policy could integrate well into existing permitting process**
 - » Additional training may be needed – LEED® and Earth Advantage
- ▶ **Possible legal challenges**
 - » Rules and restrictions on what the City is permitted to charge a fee

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Green Building Feebate

Stakeholder Impacts

- ▶ **Differential impact on development types and markets**
 - » Small developers (especially residential) – may have more financial burden in meeting feebate standards
 - » Developers in low-income markets – hard to pass on costs
- ▶ **Potential small homebuilder community concern**
 - » Regarding potential cost increases
- ▶ **Potential impact on susceptible populations is moderate**
 - » Potential for developers to pass on additional costs to tenant or homebuyer
- ▶ **Synergy with current SCL and PSE policies**

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Green Building Feebate

Policy Scorecard

SUMMARY RATINGS (★★★★★ = best/most feasible)

ENERGY EFFICIENCY POTENTIAL★★★★

ECONOMIC BENEFIT★★★★

COST OF POLICY IMPLEMENTATION★★★★

COST EFFECTIVENESS★★★★

ADMINISTRATIVE FEASIBILITY★★★★

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Green Building Feebate

Lessons Learned

- ▶ Commercial market more open to green building practices than residential market
- ▶ Additional resources for developers community would help them gain familiarity and comfort with green building practices
- ▶ Tying the feebate to third party standards allows for trained professionals to facilitate the process of policy adoption
- ▶ Set targets to stretch markets and be affordable for the City
- ▶ Keep it simple – developers tend not to want to have to work to obtain additional incentives, e.g. to prove energy performance

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Summary of Policy Scorecards

SUMMARY POLICY SCORECARD		Energy Efficiency Potential	Economic Impacts	Cost of Policy Implementation	Cost Effectiveness	Administrative Feasibility
		Rating (★ = best/most feasible)				
Investment Incentives	Green Investment Fund	★	★	★★★★	★	★★
	Green Building Feebate	★★★	★★★	★★★★	★★★	★★★★
	Property Bonus					
	Priority Green Permitting					
Mandates	Green Building Performance Standards					
	Energy Code Updates					
	Building Code Updates					

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Discussion

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